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THE CONCISE
Practical Meaſurer:
OR, A
PLAIN GUIDE
TO
Gentlemen and *Builders.*

DESCRIBING
The Certain TRUE METHODS of
Meaſuring and *Computing* the Value
of the Several Performances of

BRICKLAYERS,
CARPENTERS,
JOYNERS,
PLAISTERERS,
MASONS,
PAINTERS,
PLUMBERS,
GLAZIERS, and
PAVIORS.

The *Growth*, *Nature*
and *Uſe* of TIMBER,
viz. Of the *Oak*,
Elm, *Aſh*, *Beech*,
Walnut-Tree, *Poplar*,
Alder-Tree, *Fir*,
Norway-Oak, *Horn-Beam*,
Lime, *Box*,
Hazell, and *Maple*.

ALSO,
The FORM of a BRICKLAYER's and
CARPENTER's Bill of *Meaſurement*; the
Manner of *Digging Foundations*, and the
Method of Valuing Ground and Houſes.

The SECOND EDITION.

By *THO. MILES*, Surveyor.

LONDON:
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THE

PREFACE.

AS a Preface *to a Book is become* faſhionable, *I am under an Obligation of ſaying ſomething in regard to this Performance, tho' I ſhall endeavour to be as* conciſe *in it, as I have been in the Execution of the Work.*

I hope by the ſingle Examples, *and the Methods purſued in this Treatiſe, that* Gentlemen *and* Artificers *may be enabled to underſtand the* whole Art of Meaſuring *in a* ſmall Compaſs, *and at an* eaſy *Expence, and free from the ſeveral confuſed* Multiplicity *of Examples in thoſe Authors who have hitherto treated on this Subject.*

The whole is related and explained in the Workman's Stile, *ſo as to render it intelligible to the* meaneſt *Capacities.*

——*And as thoſe* Gentlemen, *whom I have the Honour to be* known to, *are pleaſed to allow me ſome Share of* Maſterſhip *in my Profeſſion, I ſhall leave it to the* judicious *Reader to approve or reject this* ſmall *Performance of*

His moſt humble Servant,

THOMAS MILES.

THE

THE CONCISE *Practical Meaſurer.*

Of BRICKWORK.

BRICKWORK is meaſured by the Rod, containing 272 feet three inches, (*N B.* the three inches is ſeldom or never taken Notice of) the meaſuring thereof is propereſt to be begun in the Cellar; and firſt I begin with the Chimneys, there being the greateſt Weight, and is often deeper in the Foundation than any other Part; and as I take my Dimenſions, I ſet them down in Columns, as here in Example, I make four Columns, two of them for Dimenſions, the other two Deductions; the firſt Column contains

Brick and half Work; the ſecond Column one Brickwork, the other two the Deduction, to be taken from the Work, I find the footing of my Chimney to project from the Partywall two feet two inches, and is nine inches deep and two Bricks thick; then in my Column of one Brickwork I ſet down two feet two inches by nine inches, which in the Column ſtands thus $\begin{array}{c}2:2\\ \underline{9}\end{array}$ and is marked four times, it being two Bricks thick and there being two Jambs; then take the height of the Chimney to the Top of the Joyſts, which we will here ſuppoſe to be eight feet ſix inches: Meaſure the Front from the outſide of one Jamb to the outſide of the other, ſuppoſed to be ſeven Feet four inches; ſee how many Inches it is from the Party-wall to the Front of the Jamb, which I find to be near two feet, or two Bricks and three fourths; then in your Brick Column of Work ſet down eight feet ſix inches, by ſeven feet four inches, and mark the ſame twice in the one Brickwork, there being two Bricks, and ſet down eight feet ſix inches by three feet eight inches in the Brick and half Column, three quarters of a Brick being the half of one Brick and half; then deduct the Concavity from the Top of the footing to the ſpringing of the Arch, which we ſuppoſe to be five feet by four feet and ſix inches, and twenty two inches to the Back of the Chimney, which is two Bricks and half; then ſet down five feet by four feet ſix inches in the one Brick and half Column of Deductions, and alſo in the one Brick Column of Deductions; now the Dimenſions of this Chimney to the Top of the Floor is done with; then if any angle Chimney ſhould be, as is common, if there be a footing, take it as before directed, by laying two five feet Rods ſquare to each other, one from the Party-wall, the other from the Angle againſt the Rear or Back Front: I find on the Square one Way five feet, and from the Party-wall I find four feet ſix inches; it is then plain that five feet by two feet three inches, is the Ground the Chimney ſtands on, and two feet three inches is three

Bricks, ſo that eight feet ſix inches, which is the height of the Storey, by five feet is the Dimenſion, which ſet down in the one Brick and Half Column and mark it twice, as you ſee done in the Table. Further on where the Dimenſions and Deductions with their Opera tions ſtand in a proper Method. Then deduct the Concave four feet by three feet ſix inches, and it is twenty two inches deep, which is two Bricks and a half; then in the Column of one Brick and a half Deductions, ſet down four feet by three feet ſix inches, and the ſame in the one Brick Deductions; then take the two Trimers or Arches as project from the Front of the Chimneys to bear the Foot-paces; the two Lengths added together, make twelve feet ſix inches, and the Girt of the Arch is two feet in half a Brick; in the Column of one Brickwork ſet down twelve Feet ſix inches by one Foot; take the length of the Party-wall which is found to be thirty Feet, and to ſtand on a footing twenty two inches thick, and nine inches deep, then ſet down thirty feet by nine inches, in the one Brick and a Half Column, and thirty feet by nine inches in the one Brick Column; take the length above the Footing, thirty feet by the height of the Storey, eight feet ſix inches, finding the Wall to be two Bricks thick, I ſet down thirty feet by eight feet ſix inches (being the height of the Storey to the Top of the Joyſts) in my one Brick Column, and mark it twice, it being two Bricks thick; ſuppoſing the Front be twenty Feet, as the footing to the Party-wall is taken through, there remains but eighteen feet two inches for the Length of the Footing in two Bricks and half, ſet down eighteen feet two inches by nine inches in the oneBrick and half Column, and eighteen feet two inches in the one Brick Column; then above the Footing as the Party-wall was two Bricks thick, the length will be eighteen feet ſix inches, by the height eight feet ſix inches in two Bricks, which ſet down in the one Brick Column and mark it twice; there are two Windows to be de-

ducted

ducted, the height four feet by three feet ſix inches, the breadth in two Bricks, ſet down four feet by three feet ſix inches in the one Brick Column Deductions, and mark it four times, it being two Bricks thick, and two Windows; then proced to the Rear or Back Front and take the footing which is found to be eighteen feet two inches, by nine inches, and two Bricks and half thick, ſet down as before eighteen feet two inches in the one Brick and half Column, and eighteen feet two inches in the one Brick Column; then take the Brickwork above the footing by marking the fore Front twice; ſuppoſe a Deduction of one Window four feet by four feet, which ſet down in the one Brick Column of Deductions, and mark it twice, it being two Bricks thick; now the Story of Brickwork in the Cellar being taken, proceed to the Ground Floor; take the Chimneys firſt, begin with the front Chimney as before, take the height to the Top of the Joyſts, which is found to be ten feet four inches; and the breadth of the Chimney from Outſide to Outſide of the Jambs, being five feet eight inches; and finding the Chimney to project from the Party-wall two Bricks and a half; then ſet down ten feet four inches the height, by five feet eight inches in each Column of Brickwork, which makes and is your two Bricks and half; then deduct the Concave being three feet four inches, by three feet four inches the height, and two Bricks deep, which ſet down in the one Brick Column of Deductions, and mark it twice; then take the back Angle Chimney the height as before ten feet four inches; and laying two Rods to a Square as before directed, I find four feet ſix inches by three feet eight inches, the half is four feet ſix inches, by one foot ten inches, which is two Bricks and half, ſo that ten feet four inches, by four feet ſix inches, is the Dimenſion to be ſet down once in the one Brick and half Work, and once in the one Brick Work, deduct the Concave three feet four inches by three feet in two Bricks, which ſet down in the one Brick Column of Deductions, and mark it twice, it being two Bricks deep; then proceed to the

One Pair of Stairs Chimneys, taking no Notice of your Party-walls, or Front and Rear, if they continue one Thickneſs as they generally do, but keep the height of each Storey by it ſelf, as here you ſee done which is given you by the height of your Chimneys,

	f.	in.
Ground-Floor ——— ———	10	4
One Pair —— —————————	10	8
Two Pair ——— —— ——	9	8
	30	8

I find the height of the one Pair of Stairs Chimneys to the Top of the Joyſts to be ten feet eight inches, the breadth from out to out of the Jambs, five feet eight Inches, and two Bricks and a half deep to the Party-wall; ſet down ten feet eight inches, in the one Brick and half Column, by five feet eight inches, and the ſame in the one Brick Column; then deduct the Concave three feet four inches, by three feet four inches, it being two Bricks and half deep in each Column of Deductions; then proceed to the back angle

Chimney, my height is as before, ten feet eight inches; then forming a Square with the Rods, I find it to be five feet ſix inches by two Bricks and half; ſet down ten feet eight inches by five feet ſix inches in the one Brick and half Column, and the ſame in the one Brick Column; then deduct the Concave three feet four inches by three feet in two Bricks; ſet down three feet four inches, by three feet in the one Brick Column of Deductions, and mark it twice, and proceed to the two Pair Storey, and take the Front Chimney, the height nine feet eight inches to the Top of the Joyſts, and five feet ſix inches the breadth by two Bricks and half from the Party-wall; then ſet down nine feet eight inches in both the Columns of Work by five feet ſix inches, and deduct the Concave three feet three inches, by three feet two inches in each Column of Deductions, then take the Angle Chimney, the height nine feet eight inches; then with the Rods laid Square, I find four feet ſix inches, by three feet eight inches, the half thereof making two Bricks and half; then in each Column of Work, ſet down nine feet eight inches, by four feet ſix inches, then deduct the Concave three feet by two feet ten inches, and two Bricks deep in the Deductions of one Brickwork, ſet down three feet by two feet ten inches, and mark it twice.

Suppoſing the Houſe no higher, all the Dimenſions of the Chimneys are taken except the Shafts or Funels; now proceed to the Party-wall, which from the Outſide of the Front to the Outſide of the Rear, the Length of it being thirty feet as before, and the Height of the Storeys being added together, which you find to be thirty feet eight inches, and one Brick and a half thick; ſet down thirty feet eight inches by thirty feet, in the one Brick and half Column, then the height of the Front is thirty feet eight inches, by eighteen feet ten inches, and is Brick and half thick; ſet down thirty feet eight inches, by eighteen feet ten inches, in the one Brick and half Column of Work, and mark the Dimenſions twice, the Back Front or Rear being the ſame Dimenſions, take the Parapet Wall, which is ninteen feet three inches long, and two feet high, and one Brick thick, which ſet down in the one Brick Column, and mark it twice, the Parapet being the ſame. Take the Chimneys, Shafts or Funels, which is found to be nine feet High by four feet wide in two Bricks, ſet down nine feet by four feet, and mark it twice in the one Brick Column; meaſure the back Shafts the height nine feet, by three feet ſix inches wide in two Bricks, ſet it down as before in the one Brick Column, and mark it twice; then all the Dimenſions are taken. As you come down deduct the Windows, firſt in the Fore Room, two Pair being ſix feet high, by three Feet ſix inches wide; the Back Room Window, and the Window on the Staircaſe being the ſame height and width; and there being five Windows, I ſet down ſix feet by three feet ſix inches in the Column of Brick and half Deductions, and mark the Dimenſions five times; then proceed to the One Pair of Stairs Windows, which are the ſame in Number, and ſeven feet high by three feet ſix inches wide, ſet down ſeven feet by three feet ſix inches in the Brick and half Deductions, and mark it five times; then on the Ground-floor, deduct the Front Door-Caſe, which is eight feet high by four feet wide, and ſet it down in the Brick and half Column for Deductions; then deduct the Windows being ſix feet ſix inches high, by three feet ſix inches broad, ſet it down in the Brick and half Column for Deductions, and mark it four times, there being four Windows; deduct the Back-Door-Caſe, which is found to be ſeven feet high by three feet eight inches broad, ſet it down in the Brick and half Column of Deductions: The whole Houſe is now properly taken as to the Brickwork; ſquare the Dimenſions, making them as many times as is mark'd, by ſo many times the Square of the Quantity produc'd by the firſt Operation, add them together in the one Brick and half Work, do the ſame by your one Brick and half Deductions, and ſubſtract your Quantity contain'd in your Deductions from the Quantity produc'd by your Dimenſion ſions, do the ſame by the one Brickwork Dimenſions, and alſo by the Deductions; and when you have ſo done, multiply the remaining Quantity of one Brickwork by two, there being two half Bricks in a Brick, then dividing the ſame by three brings it into Brick and half work, which added to the other Brick and half produces the Quantity of feet in Brick and half Work, which divide by 272 produces the Quantity of Rods and Feet contained in the whole, as you ſee in the next Page, making in the whole eleven Rods, 229 feet, or eleven Rods three Quarters and twenty-five feet.

Of Tiling.

TILING is meaſured by the Square, containing one hundred feet ſuperficial, and is girt over with a Line, or done by Rods, turning the Rod over the Ridge-tile to the lower Part of the Tiling, ſuppoſe the Houſe twenty feet Front and thirty feet deep, it is ſpan'd at twice, the Roof over the front Part girts twenty-two feet, which you may ſet down as under,

Feet.	Inch.
22	0
21	0
43	0
20	0

103 | 860 | 8 60 ſq. feet.

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The

		1ſt Column Brick & half Dimenſions.			One Brick and half Deductions.	
31 2		8 6 3 8	Chimney.	22 6	5 0 4 6	Concave.
85	2)	8 6 5 0	Angle Chimney.	14 0	4 0 3 6	Concave.
22 6		30 0 9	Footing to Party wall.	11 1 4	3 4 3 4	Concave.
13 7 6		18 2 9	Front footing.	10 3 6	3 3 3 2	Concave.
13 7 6		18 2 9	Footing to the Rear.	105 0 0	5) 6 0 3 6	Windows.
58 6 8		10 4 5 8	Front Chim. to Ground floor.	122 6	5) 7 0 3 6	Windows.
46 6		10 4 4 6	Ground floor back Chimney.	32 0	8 0 4 0	Front Door-caſe.
60 5 4		10 8 5 8	One pair front Chimney.	91 0	4) 6 6 3 6	Windows.
58 8		10 8 5 6	Back Cimney	25 8	7 0 3 8	Back Door-caſe.
53 2		9 8 5 6	Front Chimney Two pair.	434 0 10		
43 6		9 8 4 6	Back Chimney.			
920 0		30 8 30 0	Party wall.			
1155 0	2)	30 8 18 10	Fronts.			
2561 9 0						
434 0 10						
2127 8 2						
1093 4						

3221 0 2 The whole Number of Feet being to be divided by

rods ft.

272)3221(11 229
272

501
272

229

Theſe Tables to ſtand between
Page 14 and

	2d Column one Brick Dimenſions			One Brick Deductions.	
4) 6 6	2 2 9	Chimney footing.	22 6	5 0 4 6	Concave.
2) 124 8	8 6 7 4	Chimney above footing.	14 0	4 0 3 6	Concave.
12 6 1	12 6 1 0	Trimers.	56 0	4) 4 0 3 6	Windows.
22 6	30 0 9	Footing to Party-wall.	32 0	2) 4 0 4 0	BackWindows.
2) 510 0	30 0 8 6	Party above footing.	22 2 8	2) 3 4 3 4	Concave.
13 7 6	18 2 9	Front footing.	20 0	2) 3 4 3	Concave.
2) 629 0	18 9 8 6	Front above footing.	11 1 4	3 4 3 4	Concave.
13 7 6	18 2 9	Footing to the Rear.	20 0	2) 3 4 3	Concave.
58 6 8	10 4 5 8	Front Chim. to Ground floor.	10 3 6	3 3 3 2	Concave.
46 6	10 4 4 6	Ground floor back Chimney.	17 0	2) 3 0 3 10	Concave.
60 5 4	10 8 5 8	One Pair front Chimney.	225 1 6		
58 8	10 8 5 6	Back Chimney.			
53 2	9 8 5 6	Front Chimney two Pair.			
43 6	9 8 4 6	Back Chimney.			
77 0 2	19 3 2 0	Parapets			
2) 72 0	9 0 4 0	Chimney Shaft.			
2) 63	9 0 3 6	Back Chimney Shaft or Funels			
1865 3 0 225 1 6					
1640 1 6			1640 1 6		

2 Quotient

3)3280 3 9(1093 1/3

The Roof girts twenty-one feet, which ſet down under twenty-two feet, add them together which makes forty-three feet, which multiply'd by twenty, the Width of the Houſe, it makes eight hundred and ſixty feet; being divided by one hundred, the Quantity contained in one ſquare, it produces eight Squares and ſixty feet.

Ornaments in Brickwork, are meaſured by the foot ſuperſicial, as to Cornices and Mouldings, and alſo gaug'd Arches done and ſet in putty rubb'd, Returns done on the Sides of Windows, by the foot running Meaſure, a foot Lace or Moulding often done at the ſetting of the Thickneſs from the firſt and thickeſt Part of the Foundation, is generally done by the foot running Meaſure.

Of Carpenters Work.

CARPENTERS Work is meaſur'd by the ſquare, containing one hundred ſuperficial feet; as to naked flooring, roofing and quartering, alſo boarded flooring is meaſured by the Square, to find how many Squares of naked flooring is contained in a Houſe twenty feet Front by thirty feet deep, the thickneſs of one Party-Wall being taken out, there remains eighteen feet ten inches between the Walls, then allow ſix inches, on each ſide for proper Bearings in the Walls for the Joiſts, which makes nineteen feet ten inches, then take the Length between the Front and Rear, which is twenty-ſeven feet eight inches, then multiply twenty ſeven feet eight inches, by nineteen feet ten inches, as you here ſee done,

feet.

feet	inch.	pts.		
548	8	8	27	8 length.
		3	19	10 breadth.
1646	2	0		

and divide by a hundred, which gives you the Quantity of Squares of naked flooring, and as there are three Floors, multiplying the Produce of the firſt Operation by three gives the whole, and makes ſixteen ſquares forty-ſix feet; then take the Cieling-floor to the upper Rooms, the Joiſts being of a ſmaller ſcantling, allow but four inches bearing on each ſide, which is nineteen feet ſix inches, then multiplying twenty-ſeven feet eight inches by nineteen feet ſix inches, it produces the Quantity of Cieling-flooring, which ſet down by itſelf, the Labour thereof not being ſo valuable as the Labour to the other Floors; the ſcantlings of the Joiſts being ſmaller proceed to the Roof, and take the Length of the Rafters, which being all added together, make forty-five feet, and multiply'd by twenty ſeet, the Breadth of the Houſe, gives the Content in feet, and being divided by a Hundred gives the Content of Squares, making exactly nine Squares; coming from the Roof take the Length and Breadth of the Well-hole left for the Stairs on every Floor, and deduct the ſame from the Quantity of naked flooring; the Quantity of ſuperficial feet in the three Openings left for the Stairs, being added together, makes one hundred forty-ſix feet, which being taken from the firſt Quantities found there remains but fifteen Squares of naked flooring, which is the exact Quantity contained in the Houſe, except the Cieling-floor, of which there are five Squares thirty-nine feet ſix inches.

Guttering is meaſured by the foot ſuperficial; ſuppoſe the front Gutter twenty feet long, the Bottom-board in the Middle to be one foot broad, the Lear-board that is nail'd on the Sides of the Gutter to the Rafters, each ſix inches broad, the Middle Gutter with the Lear-boards added, makes the Width two feet; the front and Back Gutters with the Lear-boards added makes 3 feet; ſo that all the Breadths added together, makes five feet, being multiplied by twenty feet the Length thereof it gives the Quantity of ſuperficial feet of guttering ſought, being one hundred. This Method of Meaſuring is called Meaſuring by the ſmall Square.

Now follows the Method of Meaſuring by the great Square.

Not but that a Square is the ſame in Quantity, and compos'd of four equal Sides, each being ten feet, and is no more than one hundred ſuperficial feet; but the Carpenters Meaning, in working by the great Square, is when he agrees to do all the Carpenters Work, meaſuring then only upon the Ground Floor, which Dimenſion then is to be taken from the Outſide of the Door-caſe or Saſh-frame in the Front, to the Outſide of the Door-caſe or Saſh-frame in the Rear, and to meaſure from the Middle of the Party-wall to the Middle of the ther Party-wall; this is called working by the great Square, and includes Roofing, Guttering, Quartering, Naked

Flooring, Boarded Flooring, Stairs, Outſide Doors, and Door-caſes, Saſh-frames, and Outſide Shutters to the Ground-floor. Very ſeldom any farther Work is included or agreed for to be done by the great Square in Carpenters Work.

I now proceed to ſhew you how to find what Quantity of Timber, or how many ſolid or cubical feet is contained in a Houſe twenty feet front by thirty feet deep, and the ſame Method finds the Quantity in a Houſe of any other Dimenſions.

Firſt, I begin with the Roofing, and find the Length of my four Rafters, which added together makes forty-five feet, and that there are ſixteen of them; then multiply ſixteen by forty-five, it produces ſeven hundred and twenty feet, which I ſet down in a Column as in Page 31, you ſee done, ſetting the Scantling on the Top of the Column, which is four by three inches, being the Bigneſs of the Rafters, take the Bigneſs of the Gutter-plate which is found to be twelve inches by ten inches, and twenty feet long.

Set down 12 inches by 10 inches on the Top of the Column, and alſo 20 feet in the Column, ſee how many feet of Cieling Joiſts there are, which is found by adding the ſeveral Lengths together to be 480 feet, the Scantling 4 by 3 inches, which ſet down in the Column under 720 feet; then take the Length of the Lintel 20 feet, the Scantling 8 inches by 5 inches, at a convenient Diſtance in the ſecond Column ſet down 8 by 5 inches, as you ſee done, and 20 feet is the Length of the Lintel to the Rear; ſo make the ſame twice, then ſee what Bond-timber is uſed in the Walls, in the Front and Rear is found 80 feet, in the Party-wall 64 feet, added together makes 144 feet, the Scantling 4 by 3 inches, then take the Length of the Girders on the two-pair Floor, the two making twenty-nine feet, allowing eight inches at each, and for Wall-hold, the Scantling being twelve by eight inches, make a Column, ſetting 12 by 8 inches on the Top thereof, ſet 29 feet under, take the binding Joiſt, which lays from Party-wall to Party-wall, which the Girders are fram'd into, that is found to be twenty feet long and twelve inches by eight inches, ſet it done in the Column of 12 by 8 inches under the 29 feet, collect your Quantity of Joiſts, which is found by adding the ſeveral Lengths together, to be four hundred and twenty feet, the Scantling thereof is eight inches by two inches and a half; make a Column ſetting down 8 by 2 inches and a half on the Top, and ſet 420 feet under, being the Length of all the Joiſts on one Floor, added together, and is to be ſet down three times, the Joiſts to the other two Floors being the ſame. The Girders to the other Floors, and alſo the binding Joiſts being the ſame Scantling, they are to be ſet down three times, then the Lintelling one, the One Pair of Stairs Floor and Ground-floor is found to be eighty feet, and the Scantling 8 inches by 5 inches, which ſet in the Column of 8 by 5 inches, as before on the two Floors, by adding the ſeveral Lengths together, is found to be 290 feet of Bond Timber 4 inches by 3 inches, which ſet in the Column of 4 by 3 inches, then the two Cellar Lintels added together is 40 feet; the Scantling 9 inches by 6 inches, which ſet down in a Column at a convenient Diſtance by itſelf, and in the Cellar you will find it to be 110 feet run of Bond Timber, 4 inches by 3 inches, which ſet under the other bond Timber of 4 by 3 inches; then take the Door-caſes, the Back-door Jambs 6 feet 6 inches high, the two making 13 feet, the Head 4 feet 6 inches, the Jambs and Head added together makes 17 feet 6 inches, the Scantling 6 inches by 5 inches ſet in the Column of 12 by 8 inches at a convenient Diſtance, ſetting down 6 by 5 inches over it, as you ſee done in Page 31, the Front Door-caſe Jambs and Head added together being 22 feet 8 inches by 6 inches, ſet it in the ſame Column at a convenient Diſtance, ſetting 8 by 6 over it.

Now caſt up each Column, and firſt your Column of 4 by 3 inches, being caſt up, contains 1744 feet; you are to conſider that four inches multiplied by three inches, gives twelve Parts, which is only one inch; ſo that 1744 being divided by 12, gives 145 ſolid or cubical feet and 4 inches, ſet down 145 feet 4 inches in a Column where you have room to place the Contents of the other Timber under; then make appear what Quantity is contained in the 20 feet of 12 by 10, multiply 12 by 10 it gives 120 Parts, which is ten inches, being multiplied by 20 feet the Length, it gives 16 feet 8 inches of cube Timber, then proceed to the Lintelling which is 120 feet, multiply the two Sides, which is 8 inches by 5 inches, it gives 40 Parts, which is 3 inches and 4 Parts to be multiplied by the 120 feet, as you ſee done in the Column, by Croſs-Multiplication, and it produces thirty-three feet four inches, then the Cellar Lintels 9 by 6 inches, the 6 by 9 gives 54 Parts, which is four inches and ſix Parts, and which being multiplied by 40 feet it produces fifteen feet; then proceed to the Girders, there the Additions make 147 feet, the Scantling 12 inches by 8 inches, 8 being multiplied by 12 produces 96, which is 96 parts, and 96 being divided by 12 it produces 8 inches; being multiplied as before the Product is 98 feet cube or ſolid Meaſure, the Quantities of Joiſts being added are 1260 feet running Meaſure, the Scantling 8 inches by 2 inches and a half, 2 inches and a half being multiplied by 8 inches gives 20 parts, which is one inch and eight parts, and 1 inch 8 parts being multiplied by 1260 feet it produces 175 feet Cube, the Back-door Jambs and Head 17 feet 6 inches, the Scantling 6 by 5 inches being multiplied produces 30 parts, which is two inches and ſix parts, which multiplied by ſeventeen feet ſix inches, it produces three feet ſeven inches and nine parts, the Soil being Oak, and four feet ſix inches long, and ſix inches by five inches, four feet ſix inches being multiplied by two inches and ſix parts gives eleven inches and three parts, which is what is contained in the Soil, which ſet by itſelf, writing the Word Oak over it; the Front Door-caſe Jambs and Head are twenty-two feet, the Scantling eight inches by ſix inches, 6 multiplied by 8 is 48 parts, ſo it is exactly 4 inches, which 4 inches by 22 gives 7 feet 4 inches cube, then the Oak Soil is five feet long, and eight inches by ſix inches is forty-eight parts, and four inches, and four multiplied by five feet is one foot eight inches cube; then ſet down the ſeveral Quantities of Firr, the feet and inches under feet and inches, and adding them together, it makes four hundred and ninety-four feet of cube or ſolid Firr, and adding the Oak together, there are two feet ſeven inches and three Parts of cube or ſolid Oak, which are the Quantities of Timbers uſed in the Houſe.

Stairs are generally valued and taken Account of by the Steps, as ſuppoſe a Story of Stairs to conſiſt of twenty Steps, it is uſual to charge a Story of Stairs containing twenty Steps, and if each Step is three feet long, to ſay three feet going, but it is a very eroneous Method; the true One is, to girt each Step from the bottom of one

Riſer to the Bottom of the other, which ſuppoſe to be one foot ſix inches, and the Step 3 feet long, 1 foot 6 inches being multiplied by three feet, produces four feet ſix inches ſuperficial, which is to be conſider'd in Value according to the Goodneſs or Badneſs of the Stuff and Workmanſhip; the Strings or Hypotheneuſe Pieces of Timber that bear the Steps, are to be meaſured and brought into ſolid or cube feet, and the baſe Piece which the Strings pitch on, alſo the naked Timber as is to the half Paces ſhould be cub'd; the Boarding to the half Paces to be meaſur'd, as ſuppoſe the half Pace to be ſix feet long and three feet broad, there are eighteen feet ſuperficial of boarding to the half Pace, the Bearers or Bracketsas which nailed to the Strings are to bear the Steps, the Quantity is to be taken by itſelf, then the Newels alſo and the Quantity of Cube Firr in them to be ſought for, with the Quantity contained in the Rails and Balluſters, and the ſuperficial feet are to be found contained in the String-board; if there be any Ramps and

Kneelings to the Rails, they are to be girt with a Line and ſet by themſelves, for the Labour to them are of quite another Value to the ſtreight Rails; the Mouldings muſt all be girt and charg'd by the inch, or reduc'd into ſuperficial feet, and valued agreeable to the Juſtneſs of the Proportion they are wrought in.

Boarded Flooring is meaſured by the Square, containing one hundred feet, and the Dimenſions are taken from Wall to Wall: For inſtance, admit a Room to be eighteen feet ten inches between the Walls, and fourteen feet to the meeting of the Back-room Flooring, then you muſt multiply fourteen feet by eighteen feet ten inches between, which produces two hundred and ſixty-three feet eight inches, and is two Squares ſixty-three feet eight inches, then deduct the Projection of the Chimney by the Breadth from the other Quantity; this being ſo plain, I look on one Demonſtration to be ſufficient. As to Saſh-frames, they ought to be cas'd Frames with Wainſcot Pully-pieces for the

Saſhes to to ſlide againſt, Wainſcot being harder than Deal, the Saſhes run much eaſier; but ſolid Firr Frames are very often uſed, and the Stuff in each Frame is to be cub'd; and the Frames ſhould be all made with Oaken Soils, and be rebated to keep the Weather from beating in.

To ſhew the Quantity of Deal-Boards, which will be wanted in your Building, ſeek your Number of Squares of boarded Flooring, and ſixteen Ten-foot Deals will do a Square, ſo many times 16 as there are Squares of Flooring is your Quantity, then collect your Quantity of ſuperficial feet in your Stairs, and ſuppoſe ſix feet ſuperficial to a Deal, you will find what is wanted for the Stairs: Yellow Chriſtiana Deals are moſt proper for theſe Uſes.

Firr Timber may be uſed as ſoon as it comes to *England*, it being very little ſubject to caſt or twiſt, eſpecially in large Scantlings, as in Girders, Joiſts, &c.

Oak Timber, the Scantlings to be uſed ought to be cut out and lie a Year at leaſt before they are converted to the

pro-

proper Uſes in Building, being, by reaſon of the Strength of the Timber, very ſubject to twiſt and caſt.

I have pull'd down Houſes that have been built ſixty Years with Firr Timber, and the Joiſts have been very little worſe than new Stuff to look on, and in all Probability would laſt ſixty Years longer lying intirely dry; and there is very little difference in the Duration of good Yellow Firr and Oak Timber, if they both lay ſometimes wet and ſometimes dry.

Rafters, Bond-Timber, and Cieling Joiſts, 4 by 3 inches.

720 0
480 0
144 0
290 0
110 0
ft. in.
12)1745 0(145 0

145 4
16 8
33 4
15 0
98 0
175 0
3 7 9
7 1

494 0 9

Oak.
ft. in. pts.
0 11 3
1 8

2 7 3

Gutter Plate. 12 by 10 inches.

20 0
10

16 8

Lintels. 8 by 5 inches.

20 0
20 0
80 0
120 0
3 4

30 0
3 4

33 4

9 by 6 inches.

40 0
4 6

13 4
1 8

15 0

Girders. 12 by 8 inches.

29 0
20 0
29 0
29 0
20 0
20 0

147 0
8

49 0
49 0

98 0

6 by 5 in.
17 6
2 6
3 7 9

8 by 6 in.
22 0
4

7 1

Oak Soil. 6 by 5 in.
4 6
2 6
0 11 3

Oak Soil. 8 by 6 in.
5 0
4

1 8

Joiſts. 8 inches by 2 inch. 1 half.

420 0
420 0
420 0

1240 0
1 8

1260
420
420

12)2100(175

Of

Of JOYNERS Work.

IT is chiefly meaſur'd by the Yard, being three feet ſquare, and contains nine ſuperficial feet. Admit a Room to be done with common ſquare Deal Wainſcot, begin to take your Dimenſions in the Front of the Room, and go round as the Sun goes, and ſet the Dimenſions as herein is ſhewn. Suppoſe the Front of the Room to be 18 feet 8 inches, ſet down 18 feet 8 inches; the South Side 16 feet four inches, ſet down 16 feet 4 inches; the Weſt Side 18 feet 8 inches, ſet down 18 feet 8 inches; the North Side 16 feet 4 inches, ſet down 16 feet 4 inches; the Break on each ſide of the Chimney is one foot ten inches, the two added is 3 feet 8 inches, ſet down 3 feet 8 inches, and add the ſeveral Quantities together it makes make 785 feet 9 inches and 4 parts; then with a Line or Piece of Tape girt from the Top of the Cornice down a Stile to the Floor, which is found to be 10 feet 8 inches, multiply 10 feet 8 inches by 73 feet 8 inches and it produces 785 feet 9 inches parts, which is the firſt Operation: As for Example.

	feet	in.	
	18	8	
	16	4	
	18	8	
	16	4	
	3	8	
785 9 44	73	8	
	10	8	
30 10 6)	6	6	Shutters.
	3	2	
40 3 0^{3})	7	8	Jambs.
	1	9	
23 11 6 ^{3})	4	2	Sofita wind. board
	1	11	
880 10 4	3	6	dd.
10 6 -	3	0	Chim.
			f. i. pts.
9)870 4 4	(96	6 4 4	

81

60

54

6

Then you are to conſider that one Side of your Shutters are taken, for if the Shutters were to be brought further in the Room, they would fill up between Stile and Stile; as Shutters are always reckoned work and half, admit there be three Windows in the Room, take one Shutter and mark it one and half; I ſuppoſe the Shutters to be ſix feet ſix inches high, by three feet two inches wide, which ſet down under the other Dimenſions as you here ſee them; take the Jambs from the Seat to the Sofita ſeven feet eight inches high and ten inches and a half broad, then add the two Widths together it makes one foot nine inches, and mark it three times for the three Windows; then take the Sofita ten inches and a half, the Window-board twelve inches and a half broad, the length four feet two inches, then ſet down 4 feet 2 inches by 1 foot 11 inches, which are the two Breadths added together and mark it three times: Laſtly, deduct the Chimney, ſuppoſe it to be three feet ſix inches by three feet, then add your

Quantities together, and ſubſtract the Deduction of the Chimney, being 10 feet 6 inches from 880 feet 10 inches and 4 Parts, the Remainder is 870 feet 4 inches and 4 parts; which being divided by nine, the Quotient is 96 feet 6 inches and 4 Parts, which is ninety ſix yards, ſix feet, four inches, and four Parts, which is the Quantity of Yards and feet contained in the Room. If a Moulding be ſtuck on the Edge of the Stiles and Rails, as is common, you muſt then girt from the Top of the Cornice down the Pannel in every Square and over every Moulding, which is the Difference in Meaſuring Square-work and common Moulded-work. If there be a Modilion or dentil Cornice, or any Cornice wrought by Hand, it muſt be girt by itſelf, and valued by the foot run, or by the foot ſuperficial, and if the Surbace or Bace be wrought by Hand, it is to be girt and valued by the foot run or ſuperficial, then you only girt down the Pannels from the foot of the Cornice to the Surbace, and from the Surbace to the Top of the Bace-moulding.

If there be any Pilaſters, if they are Doric, take the Length and Returns of the Capitel, and add them together, and girt them with a Line from the Top down to the Bottom of the Colerino, and they are to be valu'd as by the foot run or ſuperficial; then girt down from the Colerino along the Shaft to the Top of the Bace, and girt the Pilaſter from the Biginning of one Return acroſs the Shaft to the Wainſcot the other Returns begin from, and multiply the Width ſo girt by the Height of your girt, and that gives the ſuperficial Quantity of the Shaft, then girt the Bace, and take the Length in the ſame Manner as the Capitel. If there be Columns, the Capitels, Shafts, and Baces are to be taken in the ſame Method as the Pilaſters; but if they be of the Ionic, Corinthian, or Compoſite Orders, then the Stuff uſed in the Capitel is firſt to be valued, the Time for glewing them up, then the carving is to be conſidered, if there be any Compaſs or circular

Sofita's, as often are where very good Wainſcoting is done, the ſaid Sofita's are to be girt long-ways as the circular Part góes, and alſo the Breadth is to be girt, and the girt of the Breadth to be multiplied by the girt of the Length, which gives the ſuperficial Content, and they are to be valu'd at the foot ſuperficial.

Of PLAISTERERS *Work.*

PLaiſterers Work is meaſur'd by the Yard Square, containing nine ſuperficial feet; Cielings are by Artificers generally call'd Barelathing, and is meaſured from Wall to Wall; as ſuppoſe a Room to be eighteen feet long and ſixteen feet broad, multiply eighteen feet by ſixteen feet it produces 288 feet, deduct the Chimney five feet four inches by one foot ten inches, which being multiplied it produces nine feet nine inches and four parts, which being deducted from 288 feet, there remains 278 feet 2 inches and 8 parts, which being divided by nine gives the Content in Yards, and is thirty Yards, eight feet, two inches, and eight parts of an inch, which is the Quantity of Barelathing contained in the Room. Rendering or Work done in Lime and Hair againſt the Walls, is meaſur'd in the ſame manner by the Yard. Cornices and Mouldings are girt with a Line and valued by the foot run or ſuperficial. Other Ornaments are valu'd according to the Goodneſs or Badneſs of the Performance.

Of MASONS *Work.*

MASONS Work, as paving of of Halls, Purbec-paving for Streets or Cellars, alſo flat Chimney-pieces, Foot-paces, Fire-hearths, and Coveings, are meaſur'd by the ſuperficial feet. See here the Method of meaſuring a flat marble Chimney-piece; take the Height of the Jambs, three feet, the Girt of the Jambs with the Slips and Noſings two feet ſix inches, ſet down as you here ſee three feet by two feet ſix inches, then the Mantle five feet long, Girts nine inches, the Slab, or Foot-pace, five feet long, by one foot ten inches broad.

	ft. in.	
7 : 6	3 : 0	Jambs
	2 : 6	& Slips.
3 : 9	5 : 0	Mantle
	0 : 9	
9 : 2	5 : 0	Foot-pace
	1 : 10	
20 : 5		

Square the Dimenſions, and add the ſeveral Products together it produces twenty feet five inches ſuperficial, which is the Content of Marble to the Chimney-piece; then the Fire-hearth is to be meaſured, and is two feet eight inches by one foot ten inches, and produces four feet, ten inches, eight Parts, *viz.*

4 : 10 : 8	2 : 8	Fire-hearth
	1 : 10	

Now the Coveings are to be meaſur'd, which are three feet four inches high, and each Girt one foot four inches, the two being two feet eight inches, multiplied by the height, produces eight feet, ten inches, and eight Parts, *viz.*

8 : 10 : 8   3 : 4 Coveings
             2 : 8

Now follows the Form of a Bill for a Chimney-piece.

To twenty feet five inches of white vein'd Marble Chimney-piece at ———

Four feet ten inches and eight Parts of Fire-hearth to ditto at ————————

Eight feet ten inches and eight Parts to Free-ſtone Coveings, at ————

Coaping Stones, Cornices, Quoin-ſtones, Window-ſtools, Baces, *&c.* are cubed by the ſame Method I have ſhewn in cubeing Timber, and after they are cubed you are to find how many ſuperficial feet are wrought or moulded; for firſt, the cube Stone is to be valu'd, then the working on the plain Face, and then the moulded Work.

Of PAINTERS *Work.*

THE Method of Meaſuring Painters Work is ſo little different from the Joyners, that there need not much be ſaid, only Shutters are work and half, they are in this double work, and alſo the Edges of the Shutters are to be taken, and all Edges of Doors, and in taking the Height of a Room you muſt girt from the Top of the Cornice over every Square and Moulding, and count the Sides of the Architraves to the Doors and Windows if any be. Saſh-frames are generally charg'd by the Frame, Saſh-lights by the Light, or number of Panes in the Saſh; Window-lights are valu'd by the Light; large Cornices on the Outſide of Buildings are generally valued by the foot running Meaſure; Palaſadoe-pails or Iron-work, are meaſured by the Length and Height, the ſame as other flat Meaſure.

Of PLUMBERS *Work.*

IS done by Weight, except Pipes and Ciſtern Heads to ditto, Pipes to Fronts of Houſes, and alſo ſmall Pipes to convey Water are valu'd by the Yard run; Lead caſt for Guttering on the Tops of Houſes ſhould run about ſeven Pounds to the foot ſuperficial, except on very large Buildings or Churches, nine Pounds to the foot is more proper, for as the Gutters are broader the Sun has more Power, and the thicker the Lead, the more able to reſiſt the Sun's Power; but in the Goodneſs of Lead, it is my Opinion, the Plumbers themſelves are often deceived by this Means, the Makers of White Lead buying up large Quantities, and purging the Strength and Quinteſſence thereof, and then caſt it again into Pigs, as is by the Plumbers term'd, and the Plumbers buy it unknowingly; and this ſort of Lead being expoſed to the Weather, will crack very much, yet by only ſounding thoſe Pigs with a Hammer it will in a great Meaſure diſcover what they are.

The

Of GLAZIERS *Work.*

GLAZIERS Work is meaſur'd by the foot ſquare, containing one hundred forty four ſuperficial Inches, and the Contents are generally taken from the Outſide of the Rebate in a Saſh, to the Outſide of the Rebate, unleſs it be agreed to meaſure only neat Glaſs, then the Word Work in the Saſh is to be deducted: Glaſs in Lead Work is meaſur'd from each Extream of the Lead; as for Inſtance, I ſuppoſe a Light of Lead Work to be two feet one inch high, by one foot eight inches it gives the Content three feet ſeven inches and two parts. This Method is ſo plain and eaſy, that one Example I think ſufficient.

ft. in. p.
2 : 1 : 0
3 :7 : 2 1 : 8 : 6

The

The Form of a BRICKLAYER's *Bill of Meaſurement.*

TO ten Rods 190 feet of Brickwork at *per* Rod ————————

Thirty-ſix feet ſuperficial of Brick-cornice at *per* Foot ————————-

Forty-four feet ſuperficial of gaug'd Arches at *per* Foot————————-

Sixty-nine feet run of rub'd Returns at *per* foot —

Forty feet ſuperficial of Facia at *per* foot———.——

Eight ſquare ſixty feet of plain Tileing at *per* Square--

Forty feet ſuperficial of foot Tile-paving at *per* foot ——————————

Twenty Yards of Brick-paving at *per* Yard——

Thirty-five feet run of nine inch Drain at *per* foot————————

A CARPENTER'*s Bill of Meaſurement.*

TO 16 Squares of naked Flooring, containing 349 feet of cube Fir at *per* Square ————————

Six Squares 49 feet of Cieling-flooring, containing 56 feet 8 inches of cube Fir-timber at *per* Square—

Nine Squares of Roofing, containing 44 feet of cube Fir at *per* Square -————

Two Door-caſes, ccntaining 10 feet 8 inches of cube Fir and 2 feet ſeven inches of Oak ————————

Eighty feet ſuperficial of Guttering ————————

Forty Steps to Stairs three feet going, thirty feet run of Rails and Balluſter at *per* foot———

Two Squares ¾ of clean dowl'd flooring at *per* Square———

Seven Squares 27 feet of folding joint boarding at *per* Square———

Five Square and half of ſtreight joint boarding at *per* Square———

Forty-five feet ſuperficial on the Face of Battin-doors ledg'd, at *per* foot———

Forty feet on the Face of the whole Deal-ſhutters clamped at *per* foot———

Of digging Foundations.

IT is done by the Yard, being three feet ſquare, and contains twenty-ſeven cubical feet; as ſuppoſe a Foundation to be ſeven feet deep, thirty feet long, and twenty feet broad, multiply the Length by the Breadth, and then by the Depth, as you here ſee done, and divide by twenty-ſeven feet, it gives the Content in ſolid Yards, and is one hundred fifty-five Yards, and fifteen feet.

```
          30
          20
        ------
         600
           7
        ------      yards  ft.
  27 |  4200  |     155    5
     |  27    |
      ----------
         150
         135
        ------
         150
         135
        ------
          15
```

Leſt my Reader ſhould be wholly ignorant of the Method of Croſs-Multiplication, I have here ſhewn it in ſo plain a Way that he cannot be to ſeek.

It is required to multiply 5 feet 3 inches by 2 feet 4 inches, ſet down the Number thus ————————————

ft.	in.
5	3
2	4

Say 2 times 5 is 10 feet ———	10	0
Then 2 times 3 is 6 inches———	0	6
Then 4 times 5 is 20 inches, or 1 foot 8 inches———	1	8
And laſtly, 4 times 3 is 12 parts or 1 inch———	0	1
The whole is 12 feet 3 inches ——	12	3

	ft.	in.	pts.	
If it be required to multiply 5 feet 3 inches and 6 parts, or half an inch by 2 feet 4 inches, ſet down the Number thus,———	5	3	6	
	2	4	6	
Then ſay 2 times 5 ——	10	0	0	
Two times 3 is 6 inches ——	0	6	0	
Two times 6 parts is 1 inch	0	1	0	
Four times 5 is 20 inches, which is ———	1	8	0	
Four times 3 is 12 parts or one inch ———	0	1	0	
Four times 6 parts ——	0	0	2	
Five times 6 is 30 parts ——	0	2	6	
Six times 3 is 18 ——	0	0	1	6
Six times 6 is ——	0	0	0	3
	12	6	9	9

The whole Sum is 12 feet, 6 inches, 9 parts and 9 ſeconds.

Street Paving.

IS meaſur'd by the Yard Square, containing nine ſuperficial feet; ſuppoſe a Piece of Paving to be twenty-five feet long, and eighteen feet ſix inches broad, multiply twenty-five feet by eighteen feet ſix inches, as you here ſee done, and divide the Quantity by nine, it gives fifty one Yards three feet ſix inches, which is the whole Quantity contained in this Piece of Paving.

```
          25  0
          18  6
      ——————————
       20  0
       25
        12    6
      ——————————  yds.  ft.  in.
   9 | 462    6 |  51    3    6
```

In making an Article or Agreement for Work to be done by a Workman or Artificer in the Building Buſineſs, let it be inſerted, that if any Alteration whatſoever be made, it ſhall not be deem'd a Breach of Article; but that the ſame ſhall be valu'd in Proportion according to the Prices expreſs'd, and agreed on in the Article; and as the Artificer has then no greater Gain in his Prices, he will not be ſo likely to endeavour for an Alteration; for the general Evil attending that way is the agreeing at firſt for a leſs Price than they can afford, with Views of Alterations, to break their Articles, and have their Work valu'd at as great a Price as the Law will allow them; and ſo deceive the Gentleman and hurt the fair Trader.

A Hint on the Method of Valuing Ground and Houſes.

SUppoſe a Freehold Houſe, with the Ground it ſtands on to be let at twenty Pounds *per Annum*, you are firſt to conſider the Worth of the Ground, and what Proportion of Ground-Rent a Builder can afford to pay to build a Houſe, which we will ſuppoſe to let at twenty Pounds *per Annum* when built, a Builder is not hurt if he don't pay above one fifth Ground Rent that the Houſe lets for; conſequently then this Ground is worth four Pounds *per Annum*, and the Ground is worth twenty-five Years Purchaſe, which is one hundred Pounds; admit the Houſe to have been built 30 Years or more, and there be thirty Years to come of the Leaſe, and the

Houſe be in ſubſtantial Repair, it is worth ten Years Purchaſe; thus it is plain this Houſe and Ground is worth two hundred and fifty Pounds, 20 Shillings *per Annum* being allowed for the King's Tax.

◆

OF THE
Growth, *Nature*, and *Uſe*
OF
TIMBER.

I Begin with the Oak, as being the moſt uſeful Sort of Timber for building of Ships; and the beſt Timber for Shipping is that which grows upon the ſtiffeſt Land, it being the moſt ſolid, ſtiff and durable; whereas that which grows on light Land is more brittle tho' better liked by the Houſe-Carpenter and Joyner, for the Eaſe of its working. A great deal of fine-grain'd and eaſy Oak to work grows in and about *Hertfordſhire*; but it is not of that Value as the Oak growing in the Southern Parts of *England*, which is produc'd from a ſtiff Clay; they thrive not ſo well in the Northern Parts, becauſe they have not ſo much the Heat of the Sun, neither will they proſper in very hot or very cold Countries, but require a temperate Climate, which is the Reaſon our *Engliſh* Oak ſo much exceeds thoſe of other Countries.

A Twiſted Grain Oak may be very eaſily diſcovered by the Texture of the Bark; and the more tender ſort of a fine clear Bark, is the beſt to cleave for Pails, Laths, Coopers-Work, Spokes to Wheels, and the knottyeſt and coarſeſt is beſt for Water-works, as Piles, Mill-Wheels, *&c.* and the crooked Oak, if ſound, is propereſt for Knee-timber in Shipping, if the planting of Oaks for Under-wood was more in Uſe, it would produce Stuff for Hoops in the Cooper's Trade far preferable to any other Hoops uſed, and one would out-laſt three of any other ſort; and the Spray is uſeful for Billets and Bavins, and the Bark valuable for the Tanner's Uſe.

Oak is uſed by the Houſe Carpenters for Ground-plates, Window-ſoils, for Poſts and Rails, Cellar Door-caſes, Curbs, *&c.* but very ſeldom for Floors in or about *London*, except in the Cellars.

This Timber being felled it is next to be ſawn into the proper Scantlings for the Building it is intended; but before it is proper to uſe it, it muſt be ſeaſon'd by laying it in a dry, airy Place, free from Rain and from the Extremities of either Sun or Wind; it is proper to lay them one upon another as Scantlings are cut out with Blocks or Pieces of an equal Thickneſs between them, to prevent the Timber from twiſting or caſting, and in this Form it ought to lie a Year at leaſt, before it be converted into the Framing of Floors, or any other Uſe; except this Timber is to be us'd on the Gentleman's Eſtate it is fell'd on, it cannot be cut down when the Sap is at reſt, as it ought to be for the ſake of Duration, on account of the great Value the Bark is of for the Tanner's Uſe, and it being of ſo great a Benefit to the Nation in general, that there is an Act of Parliament for the felling the ſame when the Sap is up, in order that the Bark may be peel'd off. The beſt way of raiſing an Oak is from the Acorn itſelf, and after or about three Years Growth tranſplant them, and let them ſtand till they are ſeven or eight feet high, and then remove them as you have occaſion. It is the Nature of all Oaks to ſend out a long down-right Root, generally term'd a Tap-root, and not the Side Roots till the Tap-root is got near the Bottom of the Soil, eſpecially in a light Ground, ſo the main Root growing deep, the ſmaller Roots, which are the chief Nouriſhers of the Tree, lie ſo deep, that you cannot come at them to take them up; but if you take them up young, while the Tap-root is ſmall, and not ſhot ſo far down, you may, by cutting off the Tap-root about one foot long, cauſe it to branch near the Top of the Earth, which will give you the Advantage of taking it up with ſmall Roots if removed again.

It is a very good ancient Cuſtom to put a Tile or Stone about ſix inches below the Seed, to ſtop the running of the Tap-root, which is the only Means to increaſe the Number of ſmall Roots, and occaſion the Body to thrive the faſter.

Of the ELM.

ELM may be produc'd from Seed, which is ripe about the Beginning of *April*; but this is a tedious and troubleſome Method, ſo I ſhall ſhew you the eaſieſt and moſt approved Method; which is to produce them from Layers, or Suckers, taken from the large Tree, it ſaves both Time and Labour; a Slip from off the Tree, when the Sap is riſing, or very freſh, will grow, tho' not rooted: This Tree is very eaſy to tranſplant, it having no Tap Root, after the Manner of the Oak, but hath a large ſpreading Root, which renders this Tree very eaſy to tranſplant, and may be remov'd after twenty Years Growth with little or no hazard; it is beſt to diſbranch them, except the Top, before you remove them; many young Elms ſpring from the ſmall Roots of

Trees, which after one Year's Growth, being cut off by a Spade, it may be removed or tranſplanted without the leaſt Injury done to the Mother Tree; and theſe are thought to thrive as faſt or quicker than by any other Method which can be us'd for the Increaſe of the ſaid Timber. Elms are of two Sorts, but the Common Elm is the moſt uſeful, which has a rough Bark, and grows the roundeſt, and to a great Height and large Diameter.

The ſecond Sort is called the Witch Elm, which in Height and Diameter is like the firſt Kind, but much inferior in Goodneſs: in many Places this Elm ſends forth Burs and Knobs, and is of a much ſmoother Bark than the former.

The Elm thrives better than any Timber, being planted near together, which cauſes them to run up ſpiring, and protects them from the Wind.

Elms thrives beſt in a rich, black Mould, where they can meet with Depth of Earth and Moiſture, but will grow almoſt upon any ſort of Land; tho it thrives not ſo faſt on ſandy or hot Grounds. In and about *Cranford*, in the fartheſt Part of *Kent*, I have ſeen very large Elms of the Witch Kind, as I have been inform'd, not above thirty Years Growth, altho' in a very cold deep Soil: The Elm, by reaſon of its aſpiring and tapering, is the leaſt offenſive of any Tree to Corn or Paſture. Fell them in or before *January*, when the Sap is fallen into the Root, which certainly occaſions all ſorts of Timber to be much more durable than if the Sap was up. In the Growth of Elms yon ſhou'd take care to preſerve the Top, to protect the Body from Wet; it being of a ſpungy Nature, the Rain ſoon penetrates, and in time would periſh the Heart. Shred the Boughs cloſe to the Body, to prevent any hollow Stubs growing. Elm being uſed in Places where it lies always wet, or always dry, is durable beyond Conception; therefore it is of very great Uſe to Ships Keels, being of a ſpungy Nature is the greateſt Preſervative to the Ship below the Water, Keels are the propereſt Uſe for the largeſt and beſt Elm ; next it is uſeful for Pipes to convey the Water, for Knaves to Cart and Coach Wheels, for the Preſs-maker, for Dreſſers, Coffins and Hat-blocks, *&c.* The Roots of the knotty curl'd Sort are near as good as Walnut-tree, and is finely colour'd by being laid in a wet Saw-pit with Oak Saw-duſt ; laying ſo for about a Month it is ſcarce to be diſcover'd from Walnut-tree, and is often us'd by the Cabinet-maker.

Of the ASH.

THERE are two Kinds, which are occaſion'd by the difference of the Soil, the darker Sort growing in a deep Soil is much tougher and ſtronger than the white Kind which grows on a light Soil; but the beſt to cleave is that which grows on the lighteſt Land, and thrives moſt in a light dry Mould; the richer and fatter it is the better; but it will grow if the Land be not very boggy.

The Aſh is a very laſting Timber, but if the Ends of any Bearing Piece of Aſh be laid in Mortar, it periſhes ſooner than any other Timber, and indeed it is better to lay the Ends of all bearing Timbers, either Oak, Fir, or Elm, in Loam or Clay. Aſh is a Timber very valuable to the Coachmakers for their Axle-trees, Furchels, Poles,

Poles and Standards, and if thorough dry, I cannot ſee what better Stuff they can frame their Bodies of Coaches on; alſo to the Wheelwright it is valuable, alſo for the making of Ploughs, for Hop-Poles, Stocks for Guns, Handles for Spades; and ſeveral other Uſes: The Seaſon for felling this Timber is from *November* to the End of *January* when the Sap is down; but in the lopping of the Pollards it ought not to be done till Spring, that the Bark may quickly come over to cover the Places the Lop is taken from; nor ſhould the Boughs be ſuffer'd to grow too big, becauſe they will be ſo much the longer before the Bark covers the Wound; not only that, but the Wet getting into thoſe Wounds will quickly cauſe a Decay, ſo that you muſt be forc'd to cut it down, or elſe both Body and Lop will ſoon be but of ſmall Value, and the ſame muſt be done when its obſerv'd the Wood-peckers are buſy in making Holes in them, or the Top Boughs begin to wither. The Ground Aſh much excels a Bough or Branch of the Tree for Toughneſs and Strength, and is very durable and laſting; ſome Aſh is very finely vein'd, and is often us'd by the Cabinetmaker, and called Green Ebony; they have a Method of bringing it to a Luſtre, they alſo ſtain it for Gun Stocks, and make it look little inferior to Walnut-tree, and it is better for Service; they ſtain by Iron filing and Spirits mixt, which will ſink into the Grain of the Wood, and make it of a black Colour whenever they pleaſe.

The Aſh is beſt raiſed from the Keys when they begin to fall, which is about the latter end of *October*; ſet them between that and *January*, ſet them not more than two inches deep in the Earth, they will not ſhoot from out of the Ground till the next Spring following. Set them not in froſty Weather, if you tranſplant them it muſt be when they are very young, becauſe they ſtrike a deep Root.

Of the Beech.

BEECH is of two Sorts, the black Beech and the White; the black Beech is the moſt durable, and being dry is very valuable for making all ſorts of Plains in Uſe with the Carpenter and Joyner; if this lay altogether under Water, it is little inferior to the Elm: It is uſeful to the Wheeler for Fellocs to the Wheels, alſo for the making of Chairs and Bedſteads, it is uſeful for Screws to the Preſs-maker, and often us'd for Dreſſers; the white Sort is often uſeful for the Turner for Bowls, Trenchers, *&c.* the very Scale thereof is us'd for Bandboxes, Hat-caſes, *&c.* it is much ſubject to the Worm, therefore it is proper as ſoon as it is cut to lay it in Water for about three Weeks together, the Beech being prun'd heals the Scar almoſt immediately, and is apt to put forth the Side-Branches again.

The Beech will grow on Gravel, Sandy or Heathy Grounds, on the Sides or Tops of high Hills, on chalky Rocks, where they will ſtrangely inſinuate their Roots in the dryeſt hardeſt Parts, and in Valleys, where they grow in Quantities, they riſe to a vaſt Height tho' the Soil be never ſo ſtony or barren.

Theſe Trees are raiſed from Seed, it is beſt to ſet them or ſow them between Autumn and Spring to preſerve them from Vermin, which are great Devourers of them; in tranſplanting them cut off only the Boughs and bruis'd Parts two inches from the the Body, within three or four feet of the Top, but be ſparing of the Roots. It ought to be obſerv'd the Shavings are good for the refining of

Wine, and that the Moſs is a fine Feed for the fatting of Swine.

It is taken Notice of by ſome Authors, that the Aſhes of Beech are uſeful in the making of Glaſs.

Of the Wallnut-Tree.

THESE are of two Sorts, as Black and White; the Black, which is the hardeſt and beſt grain'd, bears a ſmall hard Nut, which in a great Meaſure demonſtrates the Goodneſs of Timber for Uſe; this Tree is very uſeful to the Cabinet-maker, Harpſicord and Spinet-makers, and alſo to the Coach-maker for Pannels, *&c.*

The Trees which bear the large Nut with a ſoft Shell is the white Sort, and is not of near the Value; but is much us'd in Chairwork and ſmall Wares, and ſtain'd and colour'd by Art; and tho' of late moſt foreign Commodities are eſteem'd beyond our own, ſo Mohogany is valued beyond our Wallnut-Tree, tho' it conſiſts not of one quarter part of the Beauty contain'd in the Black Sort; this Wood poliſhes itſelf with its own Oil rubb'd on hot, which makes it look very ſleek and black.

Some Sorts are ſo fine in reſembling Mountains and various Shapes, far beyond the Art of a curious Painter; a double Advantage is reap'd by planting of thoſe Trees, the Fruit being valuable before the Tree is fit to be grub'd up.

This Tree grows beſt in a dry, ſound, rich Mould, eſpecially if they have Chalk or Marble underneath, but in a moderate Air, thriving not ſo well in extream Cold or extream Heat.

In Highway-ſides they are obſerv'd to thrive and grow to a large Size; they are ſeen to thrive on Hills, but then it is occaſioned by a Chalky Soil, and the Heat of the Chalk is the Occaſion.

It is beſt to raiſe theſe Trees from the Nut with the outſide Shells on, the Bitterneſs thereof being a great Preſervative againſt the Worm or any other Vermin.

Of the POPLAR.

THE White Poplar is moſt common which grows in high Rows; they will grow on any ſort of Land wet or dry, but thrive beſt on a rich, moiſt Soil. The Water Poplar is not of ſo white a Nature, but is one of the quickeſt growing Trees in *England*; they often make Shoots of ten or twelve foot long in a Year; they may be rais'd by Suckers taken from the Roots.

It bears Tranſplantation well, and may be planted out ſmall-like, quick cutting them two or three inches above the Pound, keep it clean weeded, and you may prune up the moſt thriving Shoots, in leſs than three Years it will be a fair Standard. You may remove them when pretty large, cutting off their Heads, which they will quickly recover.

This ſort of Wood is very good for the Turner's white Ware, and for Laſts, Hop-Poles, and alſo for Ship-Pumps, and very ſerviceable for Fuel, the Lop thriving ſo faſt.

Of the ALDER-TREE.

ALthough but little taken Notice of, has ſeveral valuable Qualties or Properties which belong but to few or none, in that if it be apply'd where it is conſtantly under Water, it will grow as hard a as Stone ; this Wood is good for Pumps, Pipes, Troughs and Wheels, and is very valuable to the Turner, and is alſo valuable to the Dyer, it being macerated in Water with ruſty Iron, makes a good black Dye ; the Bark is valuable to the Tanner.

I cannot apprehend but Faggots of this Wood muſt be very valuable to mend the Highways with in boggy Places, or in wet, deep Clays, whereas the Faggots commonly us'd are very ſoon rotten, and but of ſmall Service.

This Tree thrives beſt in moiſt, boggy Places, where little elſe will grow, as on Rivers or Watry Places; they may be rais'd by Suckers, which is eſteemed the beſt way of raiſing them.

Of the FIRR.

THE principal and moſt uſeful Firr grows in *Norway*, and is for the moſt part of it near round, it affords Maſts for Shipping and is the readieſt Timber in the World for building of Houſes, and is very durable where it is always kept dry; what we term Deal-boards is cut out of this Timber in *Norway* by ſeveral Saws going at a time, working by a Mill or Engine. This Timber may be us'd as ſoon as it can be converted after it comes to *England* in large Scantlings; but as to Deals for Flooring and Stairs, and many other Uſes, as Deal Wainſcotting, *&c.* theſe Deals ſhould lay by piled at leaſt a Year, and then the Boards for Flooring ought to be plained, and the Sap liſted off and ſhot, and be repiled for near another Year.

N. B. *The Yellow Deals are to be apply'd for Flooring, Stairs, and all outſide Works, the White for Pannels to Wainſcotting is better on account of its being clearer of Turpentine, it holds the Glew much better than yellow Stuff, for white Stuff well joined and glewed will ſooner break in the Subſtance of the Stuff in any Part of the Pannel, than break in the Joint where it is glewed: The kindeſt and beſt ſort of Boards for flooring come from* Chriſtiania, *and are the cleareſt from Knots and Sap, and about* 16 *of Ten-Foot Deals, one with another, will lay a Square of Flooring; there are ſix ſcore to the hundred, and as many times as ſixteen is contained in one hundred and twenty, ſo many Squares of Flooring will a hundred of Boards lay. Seldom any but ten or twelve foot Deals come from* Chriſtiania; *there are long ſound Deals fourteen feet and ſixteen feet long, but are a coarſer Stuff;* Dram *Deals are free good Stuff, not inferior to the* Chriſtiania; Sweeds *Deals are very hard rough ſaw'd, and generally very ſappy; there are alſo ſeveral other Sorts of Deals;*

Deals; there are alſo ſeveral ſorts of Firr Timber. Mardow *is moſtly us'd in the Common Buildings in and about the County of* Middleſex; *but there is long ſound Timber,* Brewic *Timber,* Nerve *and* Rygate *Timber, which runs of longer Lengths than the common* Mardow *does and is dearer, and better for bearing of large Weights, being of a tuff and ſtronger Nature than* Mardow, *yet as to the Length of Duration of either I believe but few can determine.*

Nerve *Timber comes over very near Square, ſo there is but little Waſte in that, and it runs very long Lengths, is of a large Size, and ſtreight-grain'd, and conſequently muſt exceed the reſt for bearing of Weights, therefore is proper to be apply'd in the Building of Subſtantial Warehouſes, and alſo in a very good Building where large Rooms are requir'd.*

Norway OAK.

FOR the Generality comes to *England* in Boards of ſeveral Thickneſſes which we term right Wainſcot, and is us'd for Screens to Palaces, Churches, Halls, Seats, and alſo Pewing to Churches, for Rails and Balluſters to Stairs, and often for the making Saſh-frames and Saſhes for Windows, and for ſeveral other Uſes: If this Wainſcot as ſoon as it comes over, before it is dry, were to be put into running Water for about two Weeks together, it would purge out part of the Sap in the Pores and many Stains, and alſo make it much more durable. It would alſo be the beſt way to ſerve our *Engliſh* Oak which we cut into Scantlings for many Uſes; it would be much more ſerviceable, and after it is taken from the Water to be dry'd by a very moderate Air, it conſolidates the Timber and makes it much more durable.

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The HORN-BEAM.

IS a Wood which grows much upon our Foreſts; it affords a pleaſant Green, a good Cover for Deer, and thrives beſt in barren and moiſt Places, and it increaſes the more on account neither the Deer or other Beaſts love to eat the Boughs; it thrives faſter than any of our hard Woods, but is only of ſmall Uſe that I know of, except for Cogs to Mill-Wheels, Handles for Tools, and Laſts, and ſome ſmall Turnery Ware; it yields a conſiderable deal of Fewel; if the Lengths are ſuffered to grow large it occaſions the Body ſoon to be hollow and rotten. It is ſaid to be raiſed of Seed which is ripe in *Auguſt*, and ſhould be ſown in *October*, and they will lie in the Ground above a Year before they appear; but the beſt way of raiſing them is by Layers from another Plant, or by Sets which may be eaſily procured in the Woods; they refuſe only a very dry and burning Soil.

* * *

The

The LIME.

IS a fine Tree for ſhady Walks, and by ſome recommended for Avenues; but there I ſhould think the Timber Tree much more preferable, both for its Beauty in Height, and alſo its being a defenſive valuable Commodity. This Lime is valuable to the Carver, it being a ſoft and eaſy Wood to cut and not ſubject to ſplit; but I apprehend it to be much more us'd by the Ship-Carvers, for in moſt Carvings in Buildings the Joyners glew up the Subſtance to be carv'd generally with the ſame Sort of Stuff as the other work is done in, which the Carving is to be fix'd to.

The common Way of raiſing the Lime is by Layers from a Mother Plant, or by laying of ſuch Suckers as come from the Root; it is eaſily tranſplanted, and as eaſily raiſed as the Elm.

Of Box.

IT is a fine hard Wood, and will thrive on barren chalky Hills where little elſe will grow; this Wood is valuable for making Artificers Rules, Sea and other Quadrants, Scales and Abundance of Mathematical Inſtruments; but after it is cut down, it requires a very conſiderable Time to be ſeaſon'd and dry'd fit for Uſe; it not being very dry is apt to caſt, and often by that Means renders the Inſtrument made of it but of ſmall Uſe; next to Box for Rules and ſeveral Inſtruments, I eſteem the Elder, as being little inferior to Colour, not ſo apt to caſt, and much eaſier to work, and in a Space of Time will become very hard; and this Tree as well as being of Uſe to the Mathematical Inſtrument-Maker and Turner, is thought to be of the moſt purifying Quality of any other.

The HAZEL.

THE Uſe of the Hazel Wood is for Hurdles, Hoops, Angle Rods Handles, and little elſe but Fuel, except for the Nuts which it bears, and its beſt raiſed by Nuts, which you may ſow as the Beech moſtly in deep Channels; the beſt time for the doing of which is in *February*, becauſe Vermin are very great Devourers of them; they prejudice much by Froſt; till froſty Weather is over, they ſhould be kept moiſt in their own Leaves, or in Sand; they may be raiſed by Layers and Suckers, and will grow on any cold dry barren Soil; but ~~I think~~ they thrive the beſt in a Gravel if any Aſſiſtance of Water.

The

The MAPLE.

THE Pollards thereof are moſt in eſteem by the Cabinet-Maker, it being very beautiful when polliſh'd; it is uſeful to the Turner for ſome ſmall Wares. I apprehend the Value of this Wood to be ſo ſmall that I think it not worth inquiring farther into.

It would be very proper for every Gentleman poſſeſſed of Land whereon Timber grows, either in Hedge Rows or otherwiſe, to have a Plan or Map drawn of the Lands, with every Tree ſet forth and drawn on the ſaid Map, which is the only Means to prevent many Prejudices, Incroachments, and other Abuſes he may be liable to ſuffer, the Charge of which is very trifling, conſidering the Advantage it is to Poſterity.

This Map ought to be made with a proper Index, ſetting forth the Quantities of Acres, Roods, and Perches contained in each Field, the Name each Field is call'd by, the different Tenants Names renting the Land, *&c.* and the Buttings and Boundings ought to be very carefully ſet forth to prevent Abuſes and Diſputes.

Deſigns for Buildings drawn, and Calculations made for the ſame, and Eſtates Survey'd, by the Author, to be heard of at the Publiſher's, Mr. *Chandler*'s Bookſeller at *Temple-Bar*.

FINIS.